

BULLETIN

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Enerfoil sheathing - insulation and air barrier

High performance sheathings such as IKO's EnerFoil are sometimes misunderstood because of their low permeance ratings. What does "low permeance" mean? Water, in the form of vapour, travels through building materials at various rates. This process is called diffusion. The rate at which water vapour can travel is determined by a material's vapour permeance rating; these values determine if a material has vapour barrier properties. Water vapour is an element that impacts how the building assembly performs; building code authorities have established a baseline for healthy relative humidity (RH) levels for a living space however, RH levels can vary depending on a number of criteria including how air is managed.

The Vapour Barrier

Polyethylene vapour barriers are commonly used in residential dwellings to minimize the effects of vapour diffusion and its impact on the building assembly. Polyethylene is common because of its very low permeance rating; it greatly reduces moisture migration into the assembly and acts as a control mechanism. It is an effective barrier when RH levels are "normal".

Cavity Insulation

Outboard of the vapour barrier is a batt insulation. This cavity insulation creates a thermal barrier which helps keep the inside warm and comfortable. In conventional residential construction batt insulation is usually positioned within the stud cavity, but since framing members represent approximately 20% of a wall assembly, much of the wall remains un-insulated.

Using EnerFoil as the Air Barrier

EnerFoil is a multi-purpose rigid insulation, and when used as an exterior insulation sheathing it increases the efficiency of conventional stud wall assemblies. If used as an air barrier, EnerFoil protects the assembly against air intrusion. The sheathing must be taped and sealed so that the air barrier is continuous. Pressure differentials will drive air into the wall - a continuous air barrier protects against this. Air is a very efficient means of transporting water vapour into a wall assembly. When used as an air barrier and insulation sheathing, a minimum thickness is required. The minimum ratio of inboard to outboard thermal resistance is determined by the National Building Code. The wall assembly is a system; it is a combination and balance of components. As sheathing, EnerFoil is an effective insulation and air barrier system, so EnerFoil can be a key component in preventing wall moisture issues.

